IN THE CLAIMS:

1. (Original) A method for generating a speech signal comprising the steps of:

receiving super-class information;

receiving fundamental frequency information;

applying each tuple of super-class information and fundamental frequency information to a module that correlates fundamental frequencies with LSF vectors for different super-classes, to obtain a desired LSF vector associated with each of said tuples; and

generating a speech spectrum, in association with each tuple, that is characterized by an LSF vector that is, or approximates, said desired LSF vector associated with each of said tuples.

2. (Original) The method of claim **1** wherein said step of generating a speech spectrum comprises the steps of generating a train of pulses with a repetition rate that corresponds to said fundamental frequency information, and filtering said train with a filter having the transfer function $\frac{1}{1-\sum_{i=1}^{p} b_i z^{-i}}$, where the b_i's are coefficients that are derived from said desired LSF vector.

3. (Original) The method of claim **1** where sequences of tuples of super-class information and fundamental frequency are divisible into groups, where each group shares a common super-class designation.

4. (Original) The method of claim **3** where super-class designations are phoneme type designations.

5. (Original) The method of claim **1** where said module is a database.

6. (Original) The method of claim **1** further comprising a step of receiving a group of speech samples in association with each received unit of fundamental frequency information, and information representative of LPC coefficients of said group of speech samples.

7. (Original) The method of claim **6** where said step of generating a speech spectrum comprises filtering each group of speech samples to form a speech spectrum with said LPC coefficients received in said step of receiving being replaced with LPC coefficients that are related to said desired LSF vector.

8. (Original) The method of claim **6** where said step of generating a speech spectrum comprises passing each group of speech samples through a filter having the transfer function $\frac{1-\sum_{i=1}^{p} a_i z^{-i}}{1-\sum_{i=1}^{p} b_i z^{-i}}$ where the a_i's are said LPC coefficients received in said step of receiving and the b_i's are LPC coefficients derived from said desired LSF vector associated with each of said tuples

9. (Original) A method for generating a speech signal comprising the steps of:

receiving a group of speech samples for a speech frame;

receiving fundamental frequency information for said speech frame;

associating super-class information with said speech frame;

applying said super-class information and said fundamental frequency information to a module that correlates fundamental frequencies with LSF vectors for different super-classes, to obtain from said module a desired LSF vector of coefficients associated with each of said tuples; and

modifying said group of speech samples to create a group of modified speech samples, such that said group of modified speech samples has a spectrum envelope whose LSF vector approximates said desired LSF vector.

10. (Original) The method of claim **9** further comprising a step of receiving a vector of coefficients that characterize said received group of speech samples.

11. (Original) The method of claim **10** where said coefficients in said received vector of coefficients are linear predictive coding coefficients.

12. (Original) The method of claim **11** where said modifying comprises applying said group of speech samples to a filter having the transfer function $\frac{1-\sum_{i=1}^{p} a_i z^{-i}}{1-\sum_{i=1}^{p} b_i z^{-i}}$ where the a_i's are said linear predictive coding coefficients and the b_i's are linear predictive coding coefficients derived from said desired LSF vector.

13. (Original) A method for generating a speech signal comprising the steps of:

receiving fundamental frequency information for a speech frame;

associating super-class information with said speech frame;

applying said super-class information and said fundamental frequency information to a module that correlates fundamental frequencies with LSF vectors for different super-classes, to obtain from said module a desired LSF vector of coefficients associated with each of said tuples; and

modifying said group of speech samples to create a group of modified speech samples, such that said group of modified speech samples has a spectrum envelope whose LSF vector approximates said desired LSF vector.

14. (Original) The method of claim **13** where said step of associating includes, at least for some speech frames, a step of receiving super-class information.

15. (Original) The method of claim **13** where said desired LSF is obtained in said module from a memory that maintains information about each super-class.

16. (Original) The method of claim **13** where said desired LSF is obtained in said module through computations based on parameter information stored in a memory, where said parameter information is sensitive to said super-class and to said fundamental frequency.

17. (Original) The method of claim **16** where said parameter information comprises parameters α_i, μ_i and Σ_i, where i is an index designating one of Q different classes, α_i is the prior probability of class i, such that $\sum_{i=1}^{Q}\alpha_i = 1$, μ_i is a mean vector for variable z= [F_0 , LSFs]^T, and Σ_i is a covariance matrix, and where said desired LSF vector is computed from , where

$$\sum_{i=1}^{Q} h_i(x)\cdot[\mu_i^y + (\Sigma_i^{yx})(\Sigma_i^{xx})^{-1}(x-\mu_i^x)]$$

where $$h_i = \frac{\alpha_i N(x,\mu_i^x,\Sigma_i^{xx})}{\sum_{j=1}^{Q}\alpha_j N(x,\mu_j^x,\Sigma_j^{xx})},$$

$$\Sigma_i = \begin{bmatrix} \Sigma_i^{xx} & \Sigma_i^{xy} \\ \Sigma_i^{yx} & \Sigma_i^{yy} \end{bmatrix},$$

and $$\mu_i = \begin{bmatrix} \mu_i^x \\ \mu_i^y \end{bmatrix}.$$

18. (Withdrawn).

19. (Withdrawn).

20. (Original) A method for communicating information from a transmitter to a receiver comprising the steps of, in the transmitter:

receiving a speech signal;

subdividing said speech signal into phoneme-related segments;

subdividing each of said segments into a plurality of speech frames;

analyzing each frame of said speech frames identify at least fundamental frequency of speech in said frame, and energy in said frame; and

transmitting said information that specifies said fundamental frequency and said energy,

at least for some of said speech frames, those being selected speech frames, transmitting information about super-class identities of the phoneme-related segments from which said selected speech frames are subdivided

~~The method of claim 18 further comprising the steps of~~ receiving said fundamental frequency information transmitted by said step of transmitting for each speech frame;

receiving said super-class identities;

associating received super-class information with received fundamental frequency information;

applying said fundamental frequency information and associated super-class information and to a module that correlates fundamental frequencies with LSF vectors for different super-classes, to obtain from said module a desired LSF vector of coefficients associated with each of said tuples; and

creating a speech frame with a spectrum envelope that is related to said desired LSF vector. speech samples, such that said group of modified speech samples has a spectrum envelope whose LSF vector approximates said desired LSF vector.